



Alpha Magnetic Spectrometer
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Alpha Magnetic Spectrometer Weekly Reports

September 3, 2004



National Aeronautics and
Space Administration

Upcoming Events:

- Meeting to discuss CITE Maintenance Costs and the AMS-02 Avionics Functional Interface Test (FIT) - September 9, 2004 – KSC
- Meeting to develop the Integration Plan for AMS-02 at CERN - September 13 - 16, 2004 – Geneva
- Schedule and Status Meeting at STADCO - September 14, 2004 - Los Angeles
- Pre-meeting for the Thermal Control System (TCS) Delta Critical Design Review (Δ CDR) - September 21 - 22, 2004 - Milan, Italy
- Thermal Control System (TCS) Delta Critical Design Review (Δ CDR) - October 18 - 19, 2004 – JSC
- AMS General Technical Interchange Meeting (TIM) - October 20 - 22, 2004 – JSC
- Electronics TIM and Uninterruptible Power Supply (UPS) CDR - November 1-5, 2004 – Taiwan
- STA Vacuum Case Delivery (on dock at STADCO) - November 10, 2004
- Flight Vacuum Case Delivery (on dock at STADCO) - November 27, 2004
- AMS General TIM - January 10 - 14, 2005 – KSC
- AMS-02 Avionics Functional Interface Test (FIT) - January 2005 – KSC
- Tracker Thermal Control System (TTCS) PDR - January 2005, CDR - April 2005
- AMS-02 Phase II Safety Review - March 2005 - JSC

Upcoming Tests:

- O-Ring Test Fixture (OTF) Vacuum Test - Suspended - J13
- Interface Plate Static Test - Date TBD - Location TBD
- Lower Joint Static Test - Date TBD - Location TBD
- STA Acoustic Test - Date TBD - ESTEC - Noordwijk, Netherlands (Schedule under review)



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- STA Sine Sweep Test - Date TBD - INFN - Terni, Italy (Schedule under review)
- Full Assembly Modal & Static Tests - Date TBD - IABG - Munich, Germany
- OTF Vacuum Test - On going - J13

Status:

- A revised Vacuum Case fabrication and delivery schedule was received from STADCO. The schedule was revised based on discussions and a review of the remaining work held at STADCO on August 18. The milestone payment schedule was updated to reflect new completion and delivery dates. A follow-up meeting is being planned for September 14 at STADCO to review the latest schedule and status of the Vacuum Case activity. To demonstrate the importance of completing the contract without further schedule slips, the Alpha Magnetic Spectrometer (AMS) Project Manager and the SEAT Program Manager will accompany the Vacuum Case Project Engineer on the trip.
- A spend plan, spanning the next 14 months, was created for the AMS Project Technical Work Plan (TWP #HECEABSX).
- The AMS-02 Multi-Purpose Lifting Fixture (MPLF) was shipped to STADCO to support Vacuum Case handling operations.
- The Structural Test Article (STA) Vacuum Case Assembly drawing was completed and submitted for checking.
- A new model of the Super Fluid Helium (SFHe) Fill Port, received from Space Cryomagnetics Ltd (SCL) in June was imported into the Vacuum Case model. A clearance analysis is in work. Preliminary results indicate that the new model is not significantly different from the previous model.
- AMS project personnel supported meetings with representatives of the Structural Engineering Division (ES) to discuss issues dealing with AMS-02 fabrication, planning, and floor space requirements.
- The discrepancy report (DR), written against the flight Vacuum Case Outer Cylinder to document a machining error on one of the ribs, was closed and returned to STADCO. The disposition is to use the part "as-is." STADCO was also instructed to re-identify the affected part as the STA and change the identification of the STA to "Flight". Three other DRs are in work.



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- A preliminary set of Vacuum Case Test Fixture (VCTF) drawings was provided to ES for a pre-fabrication review.
- The ongoing test with the O-Ring Test Fixture (OTF) was shut down due to a scheduled power outage in JSC Bldg 13. Since the o-ring grooves have already been machined into the Flight Hardware, this OTF testing will not be restarted unless problems arise during the planned leak checks of the Vacuum Cases. The procedures developed for the OTF will also be used on the STA and flight Vacuum Cases.
- A DR was written against the Bottom Support Plate of the Assembly Fixture to document three holes were drilled into the part that were not on the drawing. It appears that the machinist programmed the part based on the Top Support Plate (which has the holes), but forgot to remove the holes from the program code. The DR will be dispositioned to use the part "as-is." The Assembly Fixture is currently in fabrication at Bldg 10 by Rothe Joint Venture (RJV).
- Efforts to revise the AMS-02 Experiment to Payload Integration Hardware (PIH) Interface Control Document (ICD) are continuing. All graphics in the document are being updated to reflect the current configuration of the AMS-02 Payload. Comments from the AMS-02 Re-Baselining Review are also being incorporated.
- Work is continuing on updates to the Project Technical Requirements Specification (PTRS) for the AMS Payload Integration Hardware (PIH). Requested changes include updated AMS avionics interface diagrams for both the Shuttle and ISS. The AMS/ISS interface diagram was completed this week.
- Vacuum Case Milestones

<u>Contract Deliverable</u>	<u>Due Date</u>	<u>Status</u>
First Article Conical Flange Complete	July 2004	(Machining complete, metal finish in work)
Weld Fixture Complete	August 2004	(Currently in use for rolled ring weld tests)
STA Support Rings Complete	September 2004	(Machining complete, metal finish in work)
Weld Development Complete	September 2004	(Rolled ring weld test in work)
STA Conical Flanges Complete	September 2004	(Machining complete, metal finish in work)
Flight Support Rings Complete	September 2004	



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First Article Weld Complete	September 2004	
Flight Conical Flanges Complete	September 2004	
Shipping Fixture Complete	October 2004	(CDR complete)
STA Line Drill Operations Complete		October 2004
STA Match Drill Procedure Complete		October 2004
STA Weld Complete (for proof test @ STADCO)		October 2004
STA Vacuum Case Delivery (on dock at STADCO)		November 10, 2004
Flight Vacuum Case Delivery (on dock at STADCO)		November 27, 2004